APPENDIX E

404(b)1 EVALUATION

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SECTION 404(b)(1) EVALUATION

FINAL

SECTION 404(b)(1) CLEAN WATER ACT EVALUATION

INTERIM OPERATIONAL PLAN (IOP) SOUTH MIAMI-DADE COUNTY, FLORIDA

I. Project Description

a. Location. The C&SF system-wide project is located in South Florida and includes portions of several counties as well as portions of the ENP, Big Cypress National Preserve, and adjacent areas. The Corps' June 1992 General Design Memorandum (GDM) titled "Modified Water Deliveries to ENP," defines the project boundary as Shark River Slough and that portion of the C&SF Project north of S-331 to include Water Conservation Area 3 (WCA 3).

b. General Description

Authority and Purpose. A minimum schedule of water deliveries from the Central and Southern Florida (C&SF) Project to the Everglades National Park (ENP) was authorized by Congress in 1969 in Public Law (PL) 91-282. Section 1302 of the Supplemental Appropriations Act of 1984 (PL 98-181), passed in December 1983, authorized the U.S. Army Corps of Engineers (Corps), with the concurrence of the National Park Service (NPS) and the South Florida Water Management District (SFWMD), to deviate from the minimum delivery schedule for two years in order to conduct an Experimental Program of water deliveries to improve conditions within the ENP. Section 107 of PL 102-104 amended PL 98-181 to allow continuation of the Experimental Program until modifications to the C&SF Project authorized by Section 104 of the ENP Protection and Expansion Act of 1989 (PL 101-229) were completed and implemented. PL-101-229 eventually led to the Modified Water Deliveries (MWD) Report and Project (USACE 1992). The last feature of the MWD Project (Tamiami Trail) is scheduled to be completed in 2008, and would provide for increased water deliveries to the Park through a route that more closely approximates the original historic flow-way down the center of Northeast Shark River Slough (NESRS).

The Modified Water Deliveries to Everglades National Park General Design Memorandum (MWD GDM) and Final EIS were published in July, 1992. The MWD FEIS includes a discussion of the location capacity, and environmental impacts of the S-356 pump station and degradation of the L-67 Levee extension south of Tamiami Trail, along with other recommended features. The Canal-111 (C-111) South Dade County 1994 Integrated General Reevaluation Report (GRR) and EIS was published in May 1994. This report described a conceptual plan for five pump stations and levee-bounded retention structures to be built west of the L-31 North Canal between the 8.5 Square Mile Area and the Frog Pond to control seepage out of Everglades National Park while providing flood mitigation to agricultural lands east of C-111. The original and current configuration of these structural features is further discussed in the description of IOP Alternative (Alt) 7R.

Test Iteration 7 of the Experimental Program of Modified Water Deliveries to ENP (herein referenced as the 1995 Base) was initiated in October 1995 (USACE 1995). In February 1999, the U.S. Fish and Wildlife Service (FWS) issued a Final Biological Opinion (B.O.) under provisions of the Endangered Species Act (ESA), which concluded that Test 7, Phase I was jeopardizing the

continued existence of the Cape Sable seaside sparrow (CSSS). They further concluded that ultimate protection for the species would be achieved by implementing the MWD to ENP project (PL 101-229) as quickly as possible. In the opinion of the FWS, the FWS B.O. presented a Reasonable and Prudent Alternative (RPA) to Test 7, Phase I of the Experimental Program that would avoid jeopardizing the CSSS during the interim period leading up to completion of the MWD project. The FWS RPA recommended that certain hydrologic conditions be maintained in the sparrow's breeding habitat to avoid jeopardizing the continued existence of the species. In January 2000, the Experimental Program was terminated, and in March 2000, Test 7, Phase I was replaced by the Interim Structural and Operational Plan (ISOP) (USACE 2000). The ISOP was designed to meet the conditions of the FWS RPA included in the FWS B.O. from March 2000 until implementation of the Interim Operational Plan (IOP) in 2002. The Record of Decision (ROD) for IOP was signed in July 2002, and IOP was implemented to continue FWS RPA protective measures for the CSSS until implementation of the Combined Structural and Operational Plan (CSOP). Because of the need to have an operational plan in place prior to breeding season for the CSSS, the IOP EIS and ROD were finalized prior to completion of modeling for Alternative 7R. Pursuant to a March 14, 2006 order by the United States District Court for the Southern District of Florida, the Corps is now supplementing its 2002 IOP EIS.

General Description of Dredged or Fill Material

(1) General Characteristics of Material. Material will be removed from stockpiles of spoil mound material from along the south side of Canal 111 (C-111) and used to construct a levee-roadway that would run roughly parallel to Levee 31N (L-31N). The material is sandy with limestone inclusions.

(2) Quantity of Material (cy) - Containment levees: 239,200 cy of material will be placed in wetlands with construction of the L-31W and S-332D tieback levees.

(3) Source of Material. Some of the material was dredged from the Everglades substrate to construct C-111 and placed in mounds a long the south side of the canal below S-18C.

Description of the Proposed Discharge Site

(1) Location (map). The location is shown on Figure 2-7 of the FSEIS.

(2) Size (acres). 35 acres would be filled with levees. The original C-111 1994 GRR 404(b)(1) Evaluation identified fill acreage of 29 acres. The additional 6 acres of fill is due to widening the levee width to accommodate the higher levee needed for additional storage capacity. Construction of the S-356 pump station as specified in the 1992 MWD GDM called for permanent wetland fill of 15.7 acres and temporary wetland fill of 3.2 acres. The structure, as constructed resulted in permanent wetland impacts of approximately 0.1 acres and no temporary wetland impacts.

(3) Type of Site (confined, unconfined, open water). The levee construction sites are unconfined, open Everglades rocky prairie that is intermittently flooded.

(4) Type(s) of Habitat. The habitat is rocky glades. Vegetation in the rocky glades is primarily comprised of thinly scattered sawgrass (*Cladium jamaicensis*), spikerush (*Eleocharis*

cellulosa), and beakrushes (*Rhynchospora* spp.) on marl soils in association with muhly (*Muhlenbergia* sp.) prairies.

(5) Timing and Duration of Discharge. Work would require approximately 1.5 years for each of the individual levee project, with discharge made preferably in the dry season.

c. Description of Disposal Method: The material will be trucked to the road and levee site and dumped. Subsequently it will be moved and smoothed with earthmoving equipment.

II. Factual Determinations (Section 230.11)

a. Physical Substrate Determinations

(1) Substrate Elevation and Slope. The elevation is between 5 and 7 feet, NGVD, and there is almost no slope.

(2) Sediment Type. The substrate at the construction site is limestone rock overlain with marl soil.

(3) Dredged/Fill Material Movement. There will be no appreciable movement of matera1. It will rest on limestone rock.

(4) Physical Effects on Benthos. All benthos in the fill site will be covered, smothered and killed.

(5) Other Effects. An effect would be the formation of an area of upland. Natural uplands that occur in the Everglades are tree islands. The fill, however would be used as an access road, and woody vegetation would be kept from the crown.

(6) Actions Taken to Minimize Impacts (Subpart H). Precautions to confine the fill to the desired roadway-levee alignment will be taken. Existing access roads would be used.

b. Water Circulation. Fluctuation and Salinitv Determinations

(1) Water. Water would flow parallel to the levee and through the water control structures.

(a) Salinity. The area is fresh water, and this condition would remain unchanged.

(b) Water Chemistry. No changes.

(c) Clarity. After construction ends, clarity would be as before. During construction, turbidity would be generated in the very slowly-to nonmoving water.

(d) Color. No effect.

(e) Odor. No effect.

(f) Taste. No effect.

(g) Dissolved Gas Levels. The material is essentially clean soil; there would be moderate biochemical oxygen demand, and no change in dissolved gases.

(h) Nutrients. Old spoil material has weathered over several years in mounds, and it contains no larger levels of nutrients than are found in existing waters and soils in the area.

(i) Eutrophication. No cause for eutrophication

(j) Others as Appropriate. None.

(2) Current Patterns and Circulation.

(a) Current Patterns and Flow. The water now flows very slowly in a southeasterly direction, except when the S-332 pumps are operating. The levee and detention-retention area would divert water southward

(b) Velocity. The velocity is essentially zero.

(c) Stratification. None.

(d) Hydrologic Regime. The area is characterized by an historic average hydroperiod of 6 to 7 months, but the hydroperiod now is apparently shorter.

(3) Normal Water Level Fluctuations. Two feet deep to -3 feet.

(4) Salinity Gradients. None.

(5) Actions That Will Be Taken to Minimize Impacts (Subpart H) Precautions to confine the fill to the desired berm-levee alignment will be taken. Existing access roads would be used.

c. Suspended Particulate/Turbidity Determinations

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site. Temporary, during construction. Fill material has little organics, hence very low quantities of suspendable material.

(2) Effects on Chemical and Physical Properties of the Water Column.

(a) Light Penetration. Temporary attenuation during construction. Afterward, none.

(b) Dissolved Oxygen. No effect. No BOD, and light attenuation effects would be short and negligible.

(c) Toxic Metals and Organics. None.

(d) Pathogens. None.

(e) Aesthetics. No effect, because there are few observers. Post-construction effect of visible pump stations, canals, levees. The canals would support bank vegetation, fish and wildlife.

(f) Others as Appropriate. None.

(3) Effects on Biota. .

(a) Primary Production, Photosynthesis. No effect, because light attenuation from very briefly suspended particulates would be negligible.

(b) Suspension/Filter Feeders. Those confined to water in solution holes of the limestone, or unable to move, would be covered with the fill. Effects on the biological communities would be essentially none.

(c) Sight Feeders. Same as above.

(4) Actions taken to Minimize Impacts (Subpart H). Precautions to confine the fill to the desired berm-levee alignment will be taken. Existing access roads would be used.

d. Contaminant Determinations. None present.

e. Aquatic Ecosystem and Organism Determinations (Subpart G)

(1) Effects on Plankton. None, except under the fill.

(2) Effects on Benthos. None, except under the fill.

(3) Effects on Nekton. None.

(4) Effects on Aquatic Food Web. None.

(5) Effects on Special Aquatic Sites. The construction area is in the Everglades, adjacent to Everglades National Park. The project effect would be restoration of historic environmental conditions to the Park.

(a) Sanctuaries and Refuges. As stated above.

(b) Wetlands. Wetland functions and form would be restored to some degree as a result of the project.

(c) Mud Flats. None.

(d) Vegetated Shallows. These are the marl prairies described above. Historic, natural conditions would be restored to the extent possible.

(e) Coral Reefs. None.

(f) Riffle and Pool Complexes. None.

(6) Threatened and Endangered Species. Coordination under the Endangered Species Act has been initiated. The project is in full compliance with the Endangered Species Act.

(7) Other Wildlife. Wading birds would benefit from significant restoration effects.

(8) Actions to Minimize Impacts. Precautions to confine the fill to the desired roadway-levee alignment will be taken. Existing access roads would be used.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination. The mixing zone would likely be less than 10 yards, because of slow flow rate and very small fraction of suspendable material.

(2) Determination of Compliance with Applicable Water Quality Standards (present the standards and rationale for compliance or non-compliance with each standard). All standards will be complied with, unless a variance should be required for unforeseen reasons. A Section 401 water quality certification will be sought from the State of Florida.

(3) Potential Effects on Human Use Characteristics. Non-consumptive uses, such as bird watching, would be enhanced. Long-term contribution to improved sport fishing in Florida Bay.

(a) Municipal and Private Water Supply. No effect.

(b) Recreational and Commercial Fisheries. The project would contribute to long term improvement by increasing fresh water flow at correct times into Florida Bay.

(c) Water Related Recreation. Little to no effect.

(d) Aesthetics. Small direct effect, due to few observers. Long term contribution to restored wading bird populations in Everglades National Park.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. The project is intended to restore ecological values to the southeastern portion of Everglades National Park.

(g) Determination of Cumulative Effects on the Aquatic Ecosystem. To the extent that the project for Modified Water Deliveries to Everglades National Park is implemented successfully, that project and this should interact synergistically to provide significant restoration of ecological integrity to the southeast Everglades.

(h) Determination of Secondary Effects on the Aquatic Ecosystem. All benefits to flora and fauna would be secondary, in that the direct effects would be hydrological, but the secondary effects would be ecological and beneficial.

III. Finding of Compliance or Non-Compliance with the Restrictions on Discharge.

a. No significant adaptations of the guidelines were made relative to this evaluation.

b. The alternative that will be selected from among an array of practicable alternatives will be that which best meets the study objectives. It is probable that no practicable alternative is possible that will not involve discharge of fill into waters of the United States.

c. The discharge of fill materials will not cause or contribute to, after consideration of disposal site dilution and dispersion, violation of any Florida water quality standards. The discharge operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

d. The placement of fill material will not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat designated under the Endangered Species Act of 1973, as amended.

e. The placement of fill materials will not result in significant adverse effects on human health and welfare, municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, wetlands and special aquatic sites. The life stages of aquatic species and other wildlife will not be adversely affected. Significant adverse effects on aquatic ecosystem diversity; productivity and stability; and recreational, aesthetics, and economic values will not occur.

f. Appropriate steps to maximize positive impacts on aquatic systems will be included in plans for the recommended plan.